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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,501	11/21/2003	Kie Y. Ahn	MICRON.137DV2C1	3016
20995	7590	06/08/2004	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			MAI, ANH T	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			2832	

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant No.

10/719,501

Applicant(s)

AHN ET AL.

Examiner

Anh T. Mai

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Am

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/20/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. **Claims 1-3, 9, 18-20, 22-27 are rejected under 35 U.S.C. 102(a) as being anticipated by Kendall [US 3881244].**

Kendall discloses: a substrate comprising a semiconductor having a crystalline structure comprising germanium [col 9, lines 20-25]; a magnetic core 12 formed on said substrate [figure 13]; a plurality of paths 9 extending through the substrate; conductive coil 17 wove through said plurality of paths and surrounding said magnetic core, wherein conductive coil is at least partially diffused into said crystalline structure [figures 13, 14a, 14b; col 7, lines 63-66 and col 8, lines 40-45].

With respect to claims 1-3, it is inherently the claimed structure necessitates the claimed method step.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. **Claims 6-7, 28-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall in view of Ahn, A Fully Integrated Planar Toroidal Inductor with a Micromachined Nickel-Iron Magnetic Bar, IEEE paper.

Kendall discloses the instant claimed invention except for the material of the insulating substrate comprising semiconductor substrate/silicon wafer. Ahn discloses a semiconductor substrate as silicon wafer [figures 7a-7f]. At the time of the invention, it would have been obvious to use semiconductor/silicon substrate as taught by Ahn for Kendall. The motivation would have been to provide alternative material for the substrate as desired by the function. Therefore, it would have been obvious to combine Ahn with Kendall.

With respect to claims 4-8, it is obvious that the claimed structure necessitates the claimed method step.

3. **Claims 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall.

01Kendall discloses the claimed invention except for the plurality of vias forming by etching process. It would have been obvious to one having ordinary skill in the art at the time the invention was made the etching process is well known as conventional method [see Harvey et al.]. Similarly, using laser to form vias is considered conventional; see Budnaitis et al. [US 5966593].

4. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall.

Kendall discloses the claimed invention except for the substrate being silicon carbide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use silicon carbide for substrate material, since the examiner takes

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Official Notice of the equivalence of silicon carbide and silicon for their use in the inductor art and the selection of any of these known equivalents to use silicon carbide would be within the level of ordinary skill in the art. [see Hayakawa et al. US 5896078].

5. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall in view of Charles [US 5062197].

Kendall discloses the claimed invention except for the magnetic core comprising a magnetic oxide. Charles discloses magnetic oxide for the core structure [col 7, line 4] for its magnetic characteristics of the material. At the time of the invention, it would have been obvious to use magnetic oxide core as taught by Charles to Kendall for that purpose.

6. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall. Kendall discloses the claimed invention except for method of forming porous region by chemical vapor deposition [CVD] process. It would have been obvious to use obvious to use any of those method to form the porous region because these method are well known in the art. Applicant also admitted that using laser ablation process to form porous region is well known [specification page 7, line 31 to page 8, line 2]. Similarly, chemical vapor deposition [CVD] process as recited in claim 45 is well known [spec, page 8, line 25].

7. **Claim 12 and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall in view of Kurtz et al. [US 5569626].

Kendall discloses the instant claimed invention except for the step of forming a porous region in the substrate. Kurtz discloses the step of forming porous region in the substrate [col 7, lines 61-65]. It would have been obvious to form porous region in the substrate before depositing ferromagnetic material as taught by Kurtz. The motivation

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would have been to reflect the light back through the transparent layer where it can detected by a light detection system [abstract].

**8. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall.**

Kendall discloses the claimed invention except for the conductor being copper/gold. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use copper for the coil, since the examiner takes Official Notice of the equivalence of copper and metal for their use in the inductor art and the selection of any of these known equivalents would be within the level of ordinary skill in the art [see Chang US 5392020, col 5, lines 37-41]. MPEP 2144.03

**9. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall in view of Hubbard [US 5227659].**

Kendall discloses the claimed invention except for the conductive posts and plurality of conductive segments is fabricated from one of two different metals. Hubbard teaches the fabrication of an inductor on a substrate wherein the open conductive patterns are made of a plurality of different conductive materials, specifically diffused silicon, polysilicon, metal 1 and metal 2 [see all figures].

**10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall.**

Kendall discloses the claimed invention except for insulating material comprising polyimide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use polyimide for insulating material, since the examiner takes Official Notice of the equivalence of polyimide for their use in the insulation art and the

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selection of any of these known equivalents would be within the level of ordinary skill in the art [see Harvey et al. US 6259039].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh T. Mai whose telephone number is 571-272-1995. The examiner can normally be reached on 5/4/9 Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**ANH MAI**  
**PRIMARY EXAMINER**